

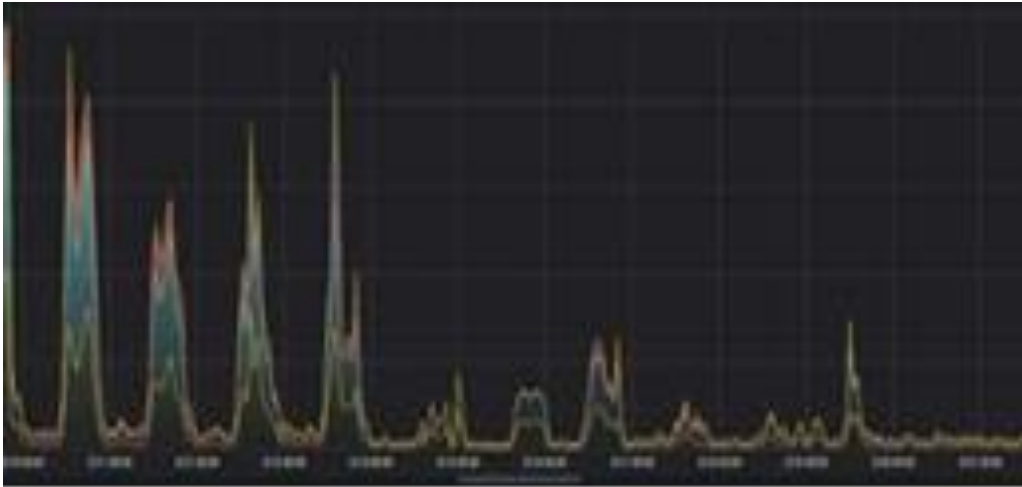


LIQUID
INTELLIGENT TECHNOLOGIES

Mombasa to Kinshasa is LIT.
(No longer a dark continent.)

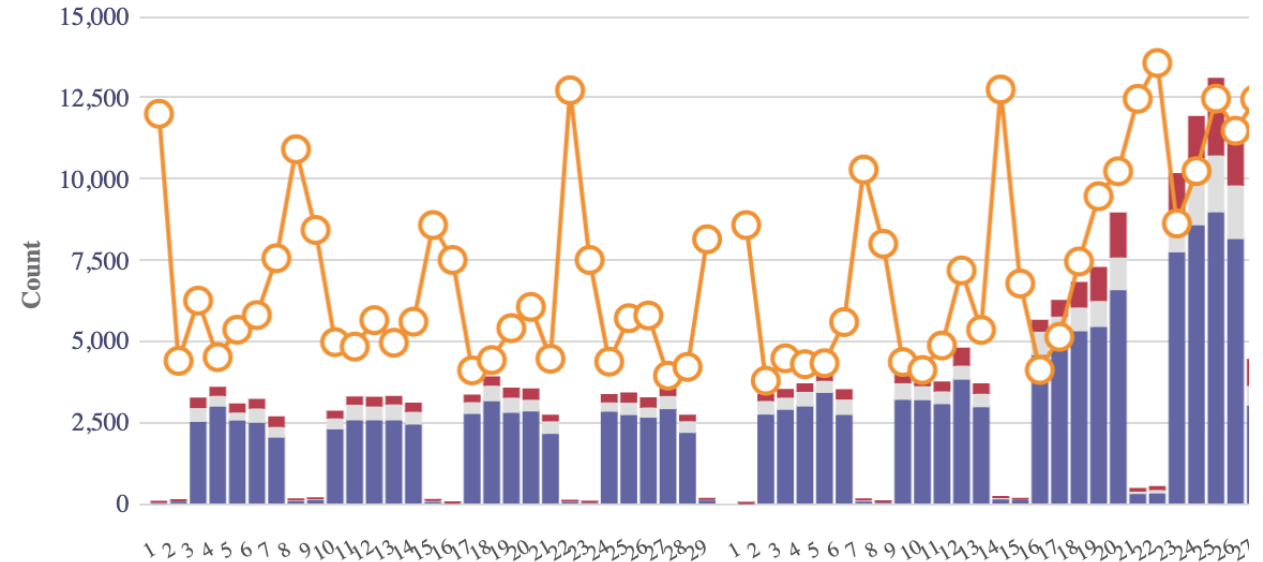
29th July 2021

Traffic Trends in the Pandemic



Office Bandwidth After full WFH Implemented

Daily Trend



Adoption of Microsoft Teams and Teams Calling/Video

Traffic shifting from business focused networks to consumer (mostly mobile) networks via IXPs

Traffic shift to cloud

ECONOMY

‘Stay at home’ order pushes Safaricom data traffic up 40pc

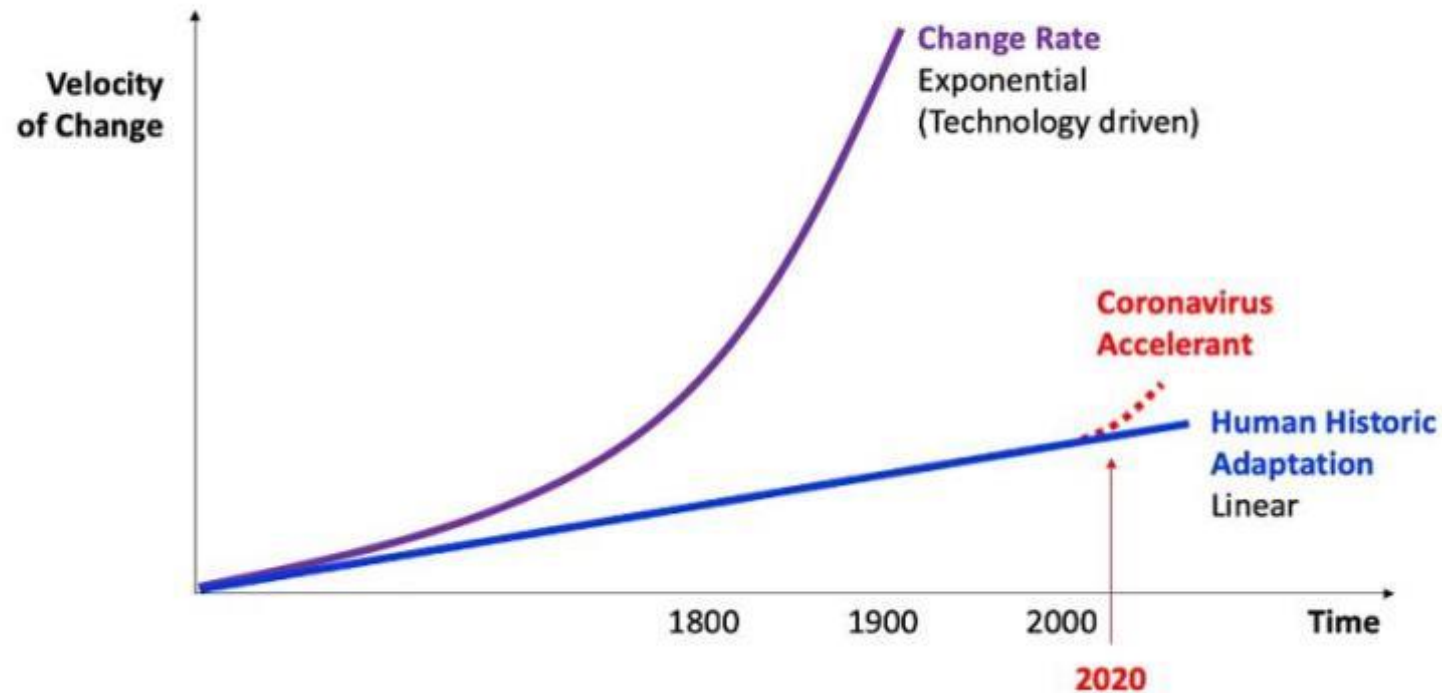
MONDAY, APRIL 13, 2020 21:40



The New Normal has exposed the DIGITAL DIVIDE

<https://www.forbes.com/sites/heathermcgowan/2020/03/23/the-coronavirus-pandemic-accelerates-the-future-of-work-and-provides-opportunity/#327c2de9317f>

CORONAVIRUS ACCELERANT: Speeds Our Digital (Human) Transformation



www.heathermcgowan.com

The Laws of Physics and Latency

Theories

- Speed of light in a medium = c / refractive index
- Velocity = Distance/Time

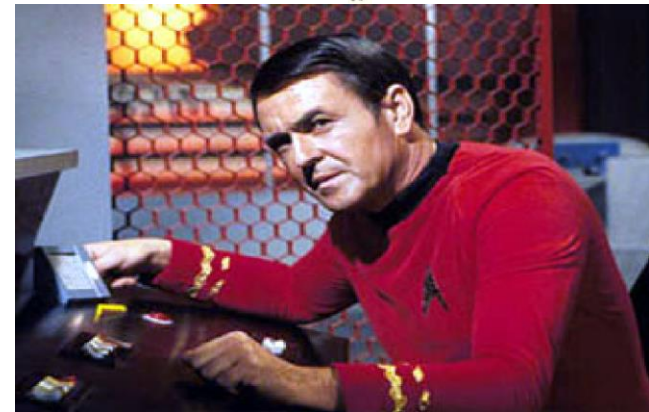
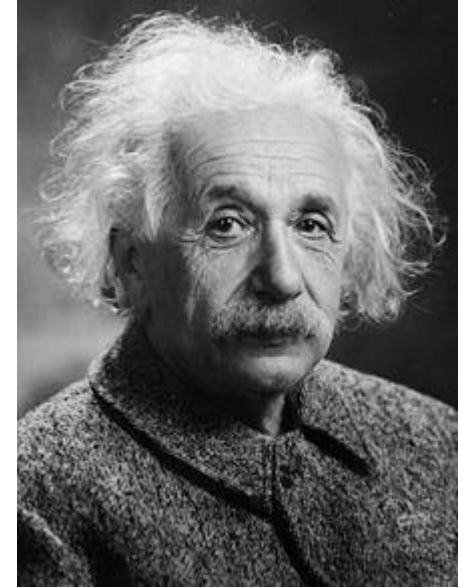
UoM

- 1 ms = 1 second /1000
- RTT = Round trip delay – Time taken there and back
- 1 km = 1000 m

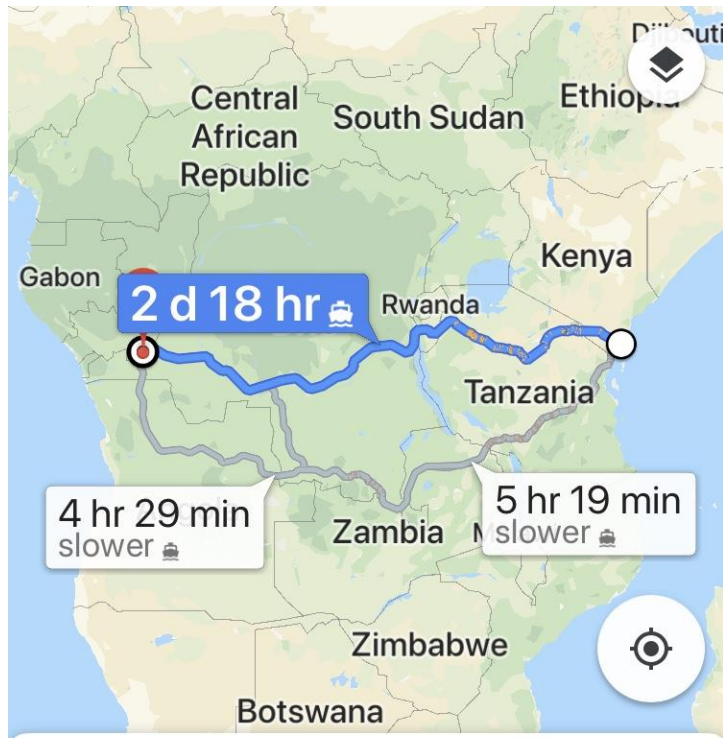
Universal Constants

- Speed of light in a vacuum (c) is 2.99×10^8 m/s
- Refractive index of doped silica with an index around 1.4475
- Speed of light in fibre = 2.06×10^8 m/s

$$\text{RTT (ms)} = 1000 \times 2 \times \text{Distance(m)} / 2.06 \times 10^8 \text{ m/s}$$



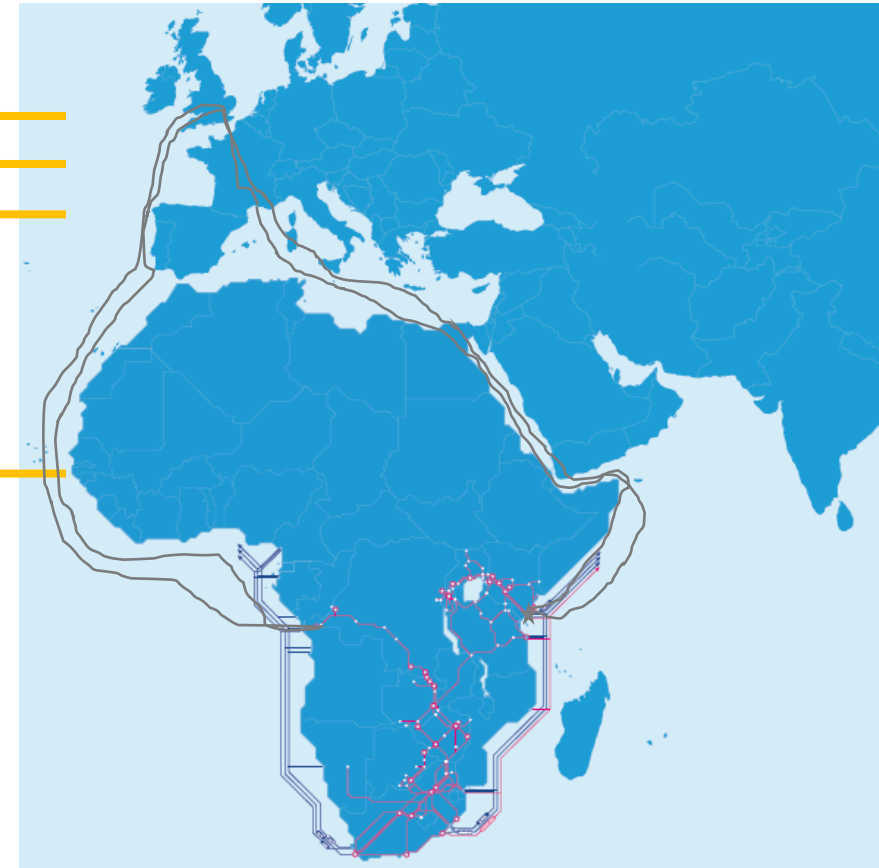
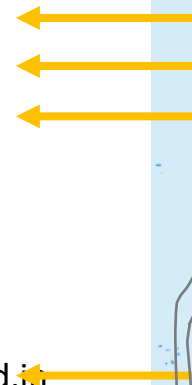
2018 - Mombasa to Kinshasa – 38 ms?



2 d 18 hr (3,948 km) !

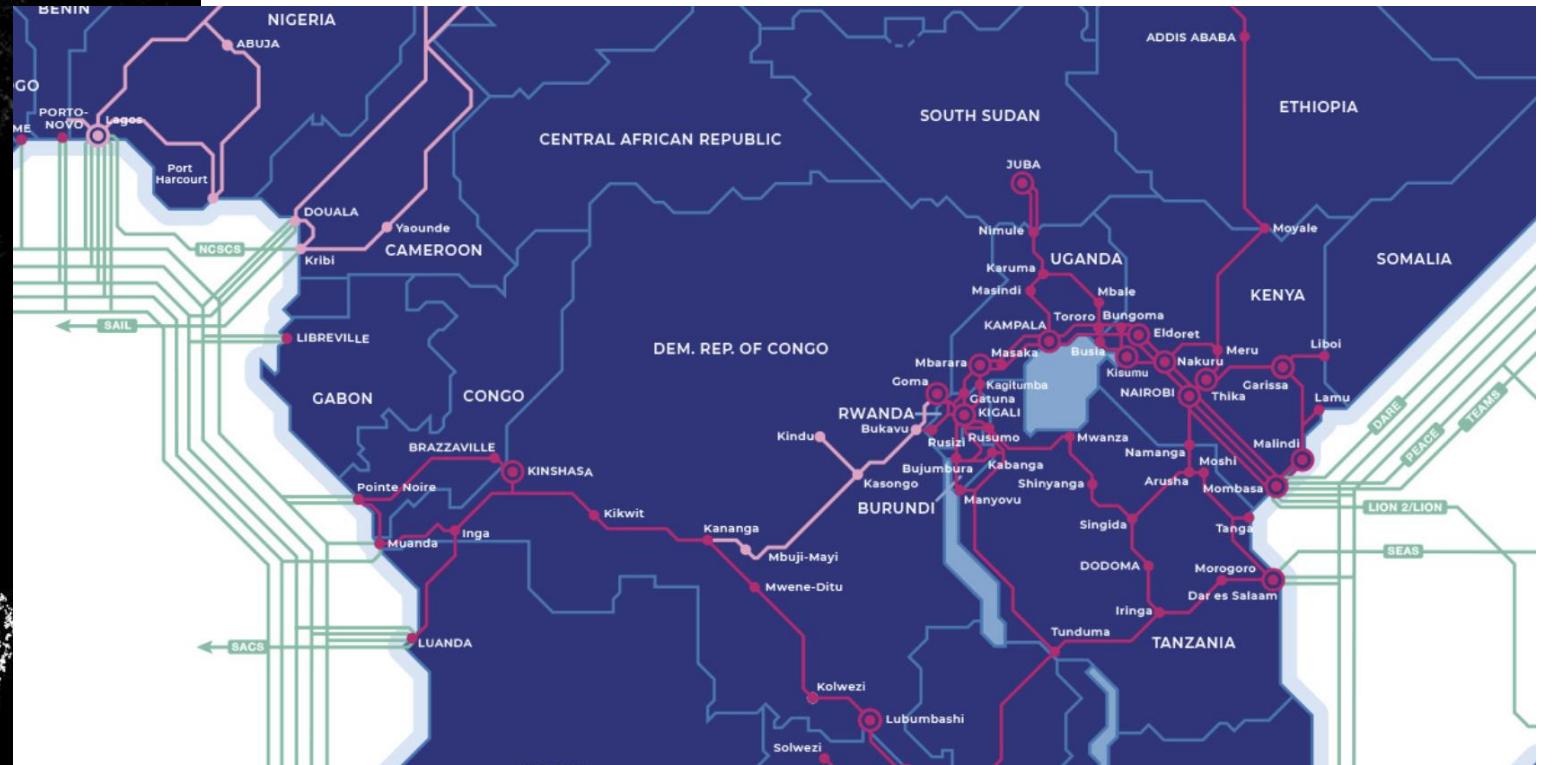
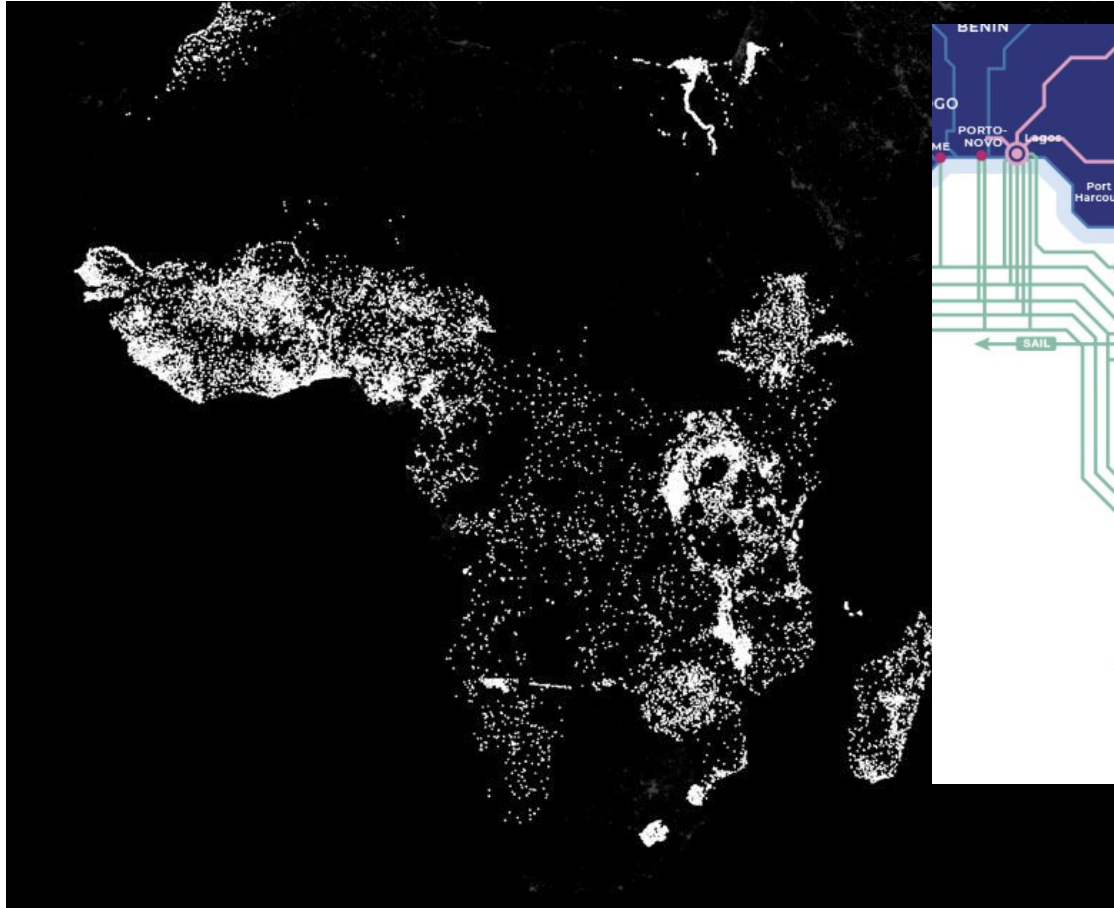
Fastest route

- LKE-P1-MSA#traceroute 41.243.13.1
- 1 teng0-0-1-0-0-lfr-pe1-mrs.liquidtelecom.net
- 2 te0-0-0-0.luk-pe1-gsw.liquidtelecom.net
- 3 be5.luk-pe1-tho.liquidtelecom.net
- 4 5.11.10.95 145
- 5 195.66.226.204 131
- 6 182.79.222.165
- 7 125.62.187.189
- 8 dsl-del-static-078.45.246.61.airtelbroadband.in
- 9 41.243.13.1 302

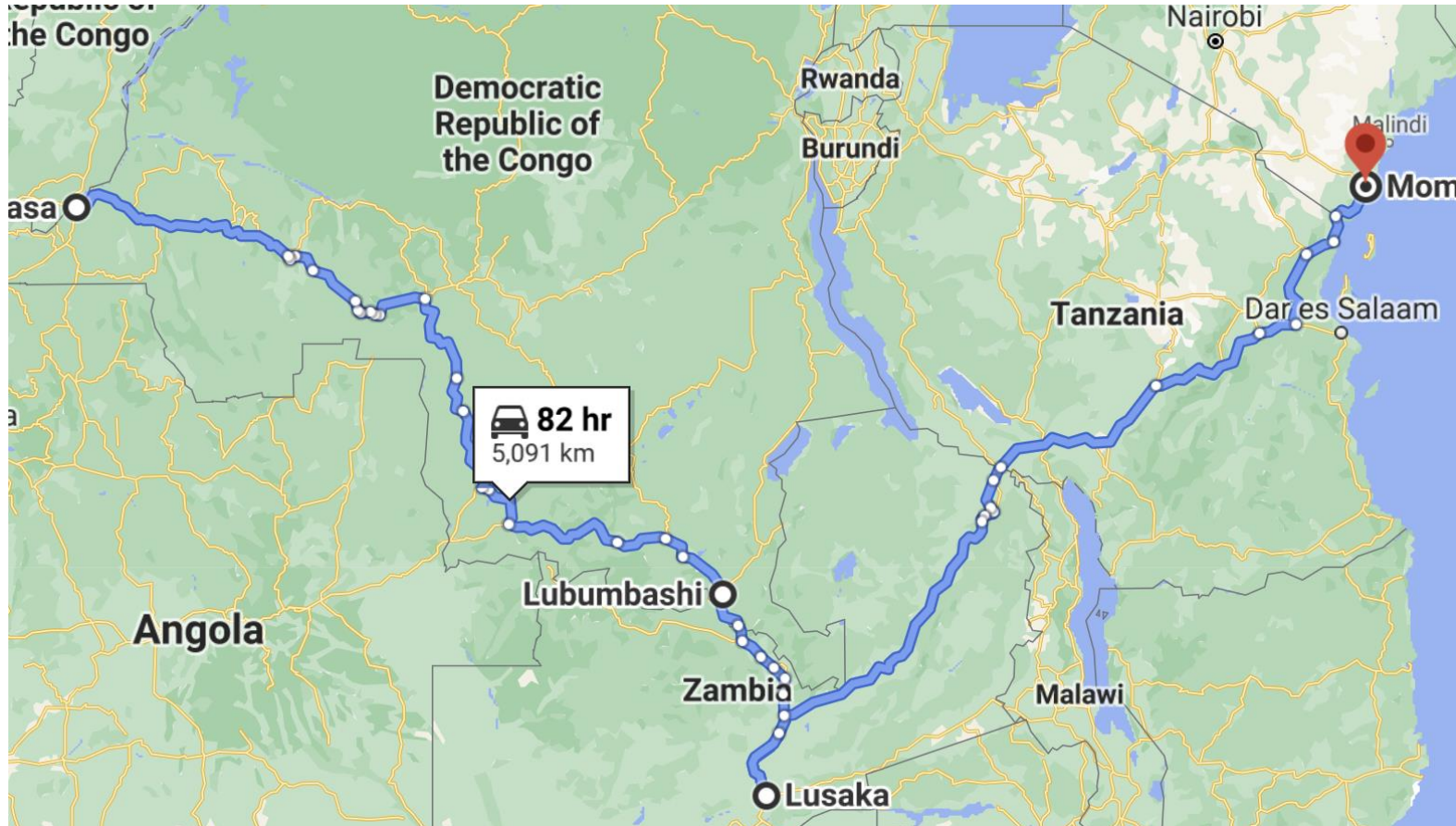


296 ms

East West Now LIT with more routes in progress



Now 61 ms - Compared to Theoretical route Minimum 50 ms



PE1-FIH > traceroute
197.155.86.231.liquidtelecom.net

63.188 msec

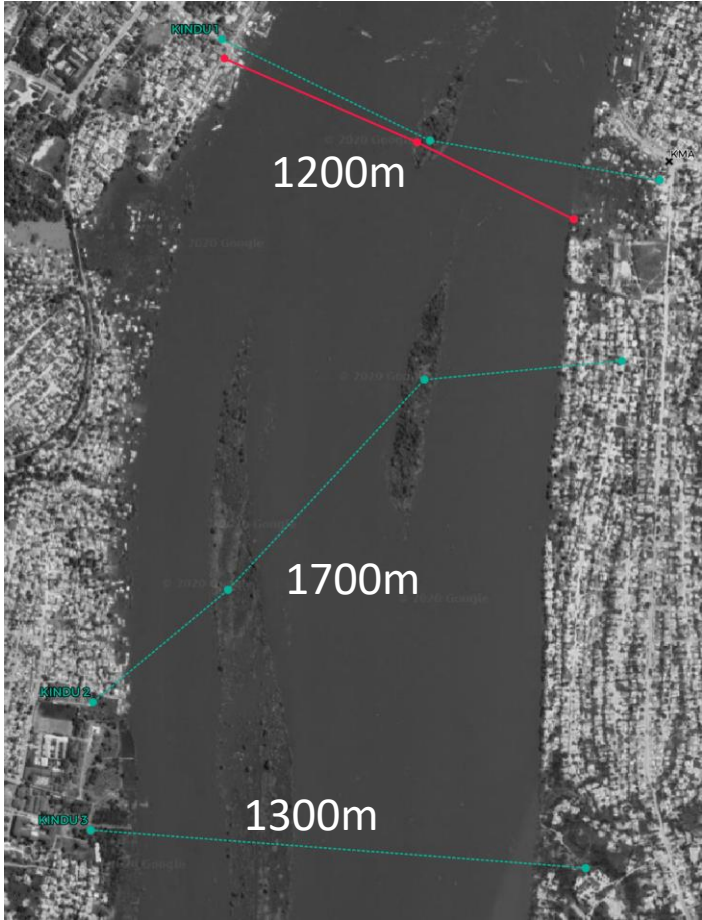
PE1-MSA > traceroute
197.155.86.230.liquidtelecom.net

62 msec

Impacting millions of Africans by addressing gaps in First and Middle Mile



Technology and Civil Engineering Challenges to Solve



Learners Were Left Behind...

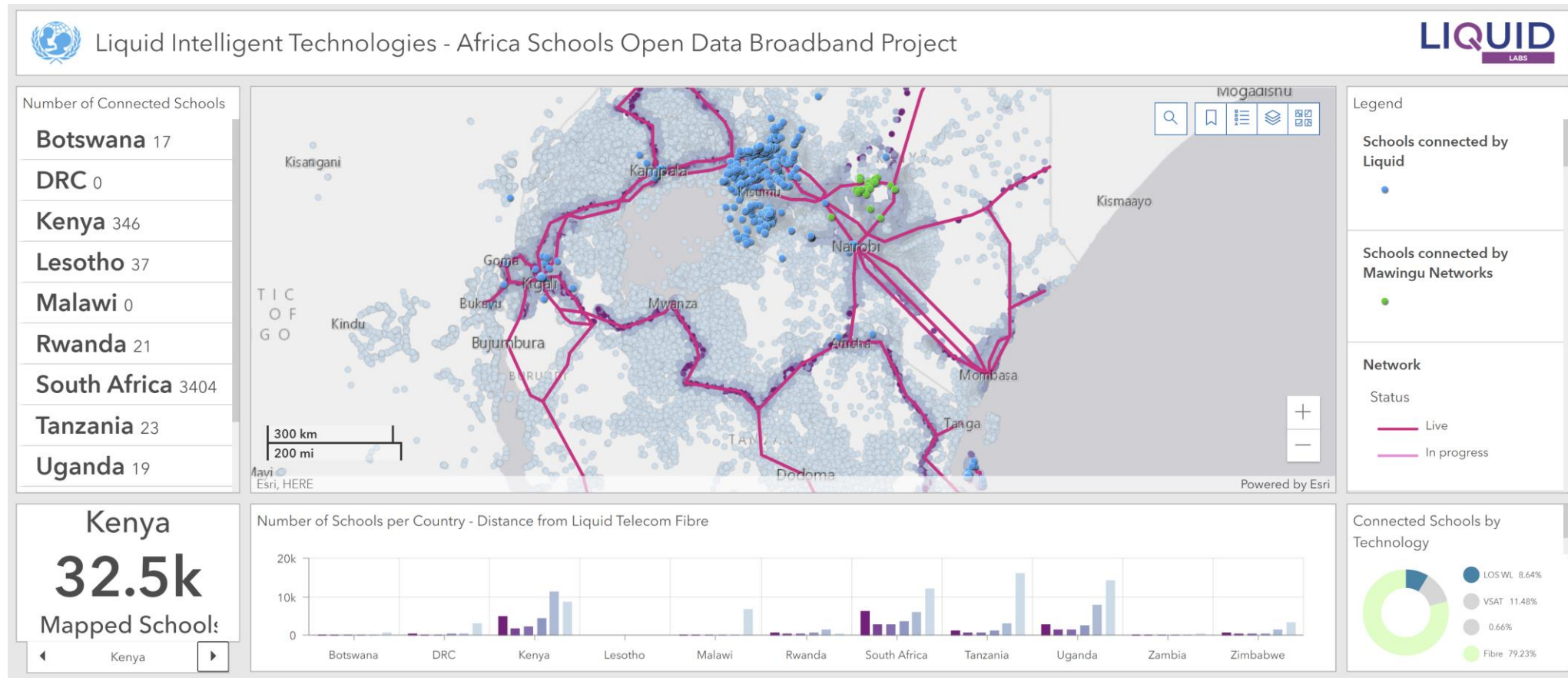
- Schools closed for long periods in 2020
- Radio and TV channels available but these were not transformative
- Tools available to shift towards distance-based learning
- Few Schools had sufficient broadband to be able to host lectures
- Also challenges with affordability of 2G/3G broadband to home learners
- Operators rose to the challenge with zero rating
- Liquid Intelligent Technologies has 310 schools connected to broadband, seeing v high uptake of special offers of Microsoft education packages
- But Universities, equipped across Africa with mega high speed broadband, are also struggled to adapt



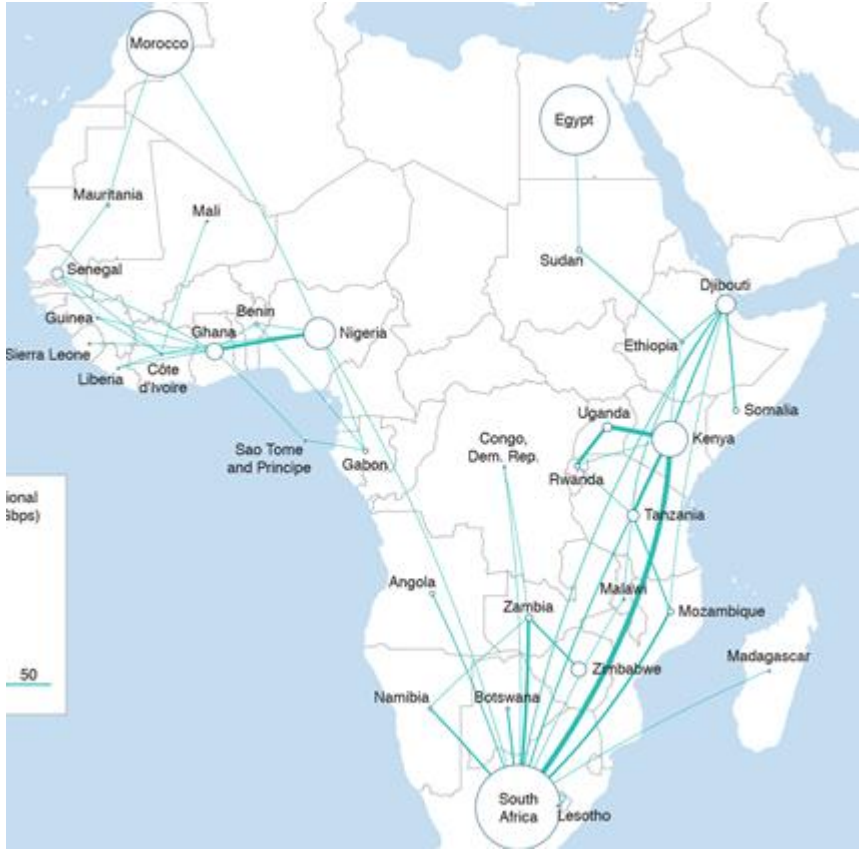
Typical Kenyan School Computer Lab

Schools Mapping Project schools.liquid.tech

- Publicly available data
- Data Requested from Ministries
- Partnering with UNICEF
- 11 countries ~ 150,000 Schools Mapped
- Around 4000 Schools Connected
- USF Kenya 320 out of 1000 secondary schools



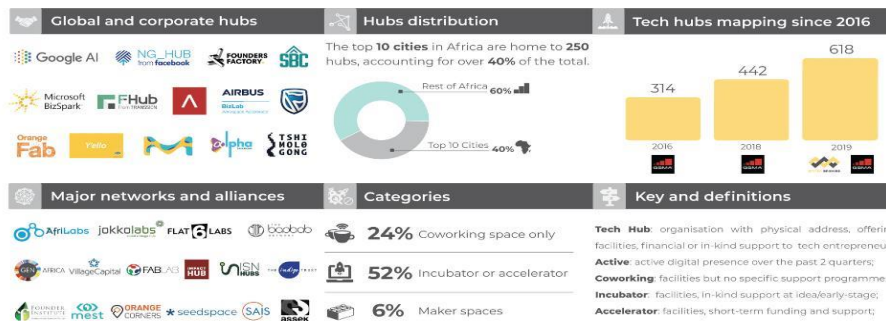
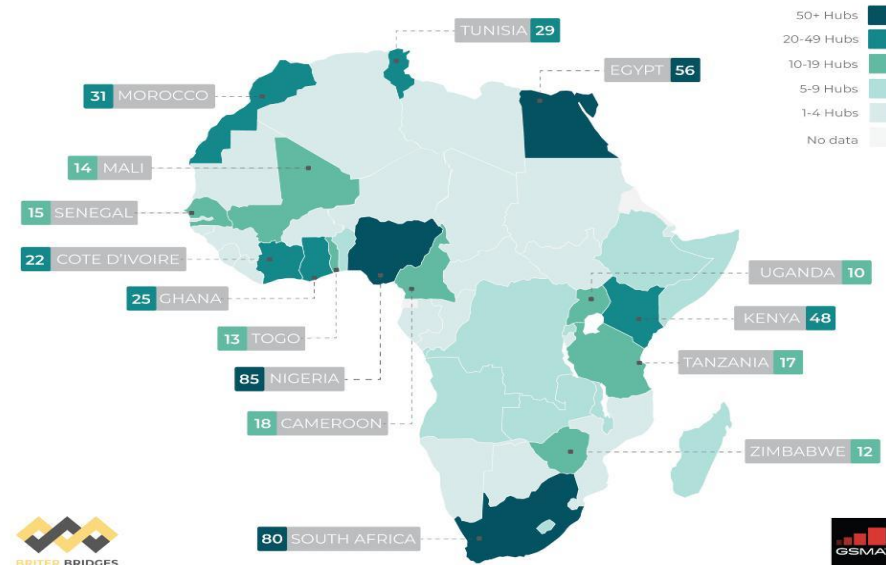
2020 - Cloud Onramps and Intra African Traffic (TeleGeography)



Pan Africa Digital Trade - Possibilities for Digital Startups and Content

618 TECH HUBS

A mapping in collaboration with the GSMA Ecosystem Accelerator programme



The logo for LIQUID INTELLIGENT TECHNOLOGIES is positioned in the upper left quadrant of a dark blue circular area. The word "LIQUID" is written in a large, bold, white, sans-serif font. Below it, the words "INTELLIGENT TECHNOLOGIES" are written in a smaller, all-caps, white, sans-serif font. The background of the circle is a dark blue field with faint, glowing pink and blue particles or data points.

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